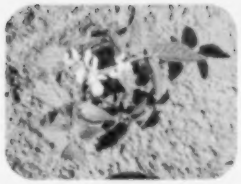

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Agriculture Development Branch
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Comments, suggestions or articles are welcome. To be added to the distribution list please contact:

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Early Spring Means Early Soybean Cyst Nematode Symptoms!

Albert Tenuta, Field Crop Plant Pathologist
OMAFRA, Ridgetown

The early start and relatively dry conditions over most of southwestern Ontario has made for a quick start to SCN development. Over the past two weeks, the pearl white to yellow female "cysts" can be easily found on young soybean plants. Nematode feeding damages the root system thus preventing or inhibiting the uptake of water and nutrients. In many cases, SCN symptoms may not be obvious in a field until populations build significantly and may go unnoticed for many yields. For this reason it is important to examine roots for SCN cysts.

What should you be looking for?

Below-ground - SCN symptoms include dwarfed, stunted and discoloured roots (due to root rot pathogens such as Rhizoctonia/Fusarium) with fewer nitrogen-fixing nodules. However, the most obvious sign of SCN infection is the presence of the adult female "cysts" on the roots — white to yellow-brown cysts less than 1 mm in diameter, equivalent to the size of the period at the end of this sentence.

PIONEER. A DuPont Company
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Early Spring Means Early Soybean Cyst Nematode Symptoms!.....continued

Above-ground - SCN symptoms include in many cases no yellowing of the leaves, stunting of plants and early maturity, particularly on lighter soils under dry conditions or stressed areas in the field. Damage often occurs in circles and is often confused or misdiagnosed as nutrient deficiency, flooding, herbicide injury, compaction, drought or root rot damage. Yellowing of the leaf margins can resemble potassium deficiency symptoms. However, the addition of potassium will not reduce the damage from SCN or eliminate symptoms.

Nematode injury symptoms (including plant death) are most obvious under stressed growing conditions, especially hot, dry environments. Under good growing conditions, the visual damage from soybean cyst nematode may go unnoticed. In contrast, under high-stress conditions, even low SCN numbers cause considerable visual damage and high yield loss. SCN infection symptoms may not be obvious and yield reductions of 25%–30% on susceptible fields can occur without visual (above-ground) symptoms. Areas of the field where above-ground SCN symptoms will most often occur include entrance points for equipment into the field, equipment and vehicle storage areas, tops of knolls, compacted headlands and along the fencerow where wind-blown soil tends to accumulate.

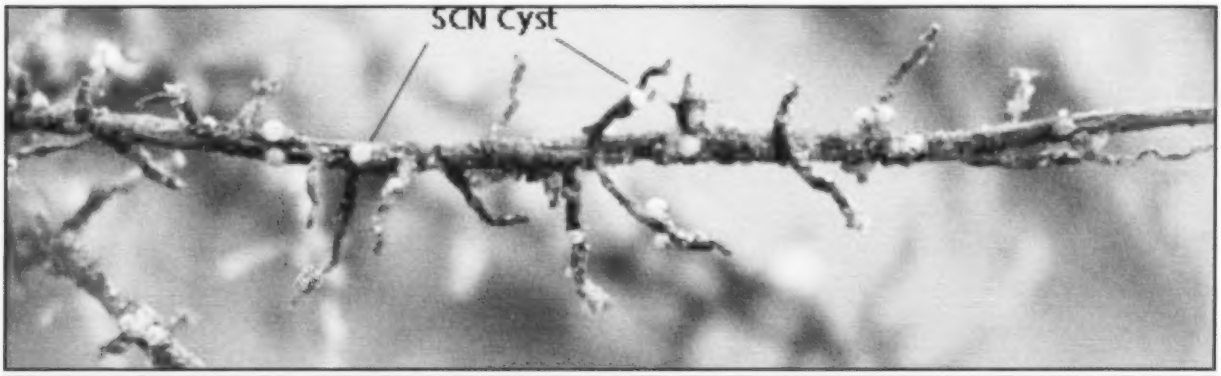

Figure 1 - Never pull up a plant to check for SCN since too much root will be lost, and the nematodes will be stripped off. Instead, use a shovel and dig up the plant along with the soil surrounding the roots.

If you suspect SCN call your local OMAFRA office or Albert Tenuta at albert.tenuta@ontario.ca. SCN soil tests can be sent to the following labs:

Pest Diagnostic Clinic
Laboratory Services Division
University of Guelph
95 Stone Road West
Guelph, Ontario N1H 8J7
Tel 519-767-6256
Fax 519-767-6240

SGS - Agri-Food Laboratories
503 Imperial Road, Unit #1
Guelph, Ontario N1H 6T9
Tel 519-837-1600 or 1-800-265-7175
Fax 519-837-1242

A & L Labs Canada East Inc.
2136 Jetstream Road
London, Ontario N5V 3P5
Tel 519-457-2575
Fax 519-457-2664

Contact these labs for current prices and nematode handling and shipping procedures.

Variegated Cutworm in Soybean?

Tom Cowan, Entomologist, OMAFRA, Ridgetown

I've had a few calls in the past few days asking about armyworm and black cutworm damage in soybeans. I had the chance to get out to a few fields and found that the damage is being caused by the variegated cutworm (Peridroma saucia). The variegated cutworm is another migrating moth that comes into Ontario in the early spring around the same time as the true armyworm. The females are attracted to low growing vegetation to lay eggs. These cutworms feed on the leaves of the plants and don't tend to clip them off at the stem like black cutworm. Typically this insect is not a serious problem in soybeans in Ontario but this year it seems to have caused some sporadic damage and in some cases to large sections of field. So far it appears that the damage is being found in no-till soybeans where there was more dense spring weed cover and corn residue in the field which is a perfect hiding spot for the larvae during the day. I have not heard of any damage yet in conventional fields.

Identification

The variegated cutworm larvae are grey, mottled and have distinctive yellow dots at the top of the front abdominal segments. Sometime you may find a yellow-orange stripe along the body.

Figure 1. Variegated cutworm in soybean

Scouting

Since there are no thresholds available for this insect in soybeans, use the soybean defoliation chart to help determine if treatment is needed. The larvae feed by eating chunks out of the leaves starting from the leaf margin. This is different from bean leaf beetle damage where small holes are made in the leaf. In 10 areas of the field, pick trifoliate leaves from five plants in the middle of the canopy. Discard the least and most damaged leaflets from each trifoliate collected. Compare the damage found to the cart below to determine the % damage to the leaves. Look under crop residue for the cutworms and determine the size of the larvae.

Figure 2. Variegated cutworm damage (Photo Credit: Bryan Stennett)

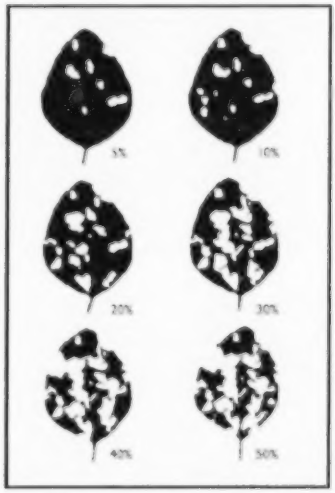

Figure 3. Soybean Defoliation chart (Agronomy Guide to Field Crops; Publication 811)

Control Options

Soybeans can withstand a fair amount of defoliation in the vegetative growth stage before any yield loss is noticed. If you are finding more then 30% defoliation in the vegetative stages, use of an insecticide may be needed. Matador and Silencer are registered for cutworm control in soybeans and applications should be made in the evening when cutworms are active. Larvae larger then 2.5cm may be more difficult to control with insecticides.

From what I have been seeing, it seems like the larvae are quite large and may be in their final instar before they pupate. If replanting is being considered I think that by the time the beans germinate, the majority of larvae should be in the pupae stage and the risk of feeding will be reduced.

WBC Moth Caught!

In other news… we have caught our first confirmed Western bean cutworm. This year the first confirmed moth was caught in Aylmer. Now the count begins towards the peak flight so keep up to date on the numbers on the Canadian Corn Pest Coalition web site www.cornpest.ca. I'll be posting additional info on the blog as we go.

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FHB and Wheat Update

A few wheat fields in Essex may see a late June harvest with the majority going first week of July. Fusarium head blight incidence appears low to race in most areas. Foliar leaf diseases are field and area specific, with the majority being at low levels. Wheat sawfly damage reported in the southwest; look for clipped heads and piles of stalk.

A.Tenuta and P. Johnson
OMAFRA

Double Cropping Soybeans

Horst Bohner, Soybean Specialist, OMAFRA, Stratford

Winter wheat is maturing rapidly and harvest is expected to be early this year if the weather co-operates. It's expected that significant acreage could be harvested by the 10th of July. High soybean prices and the hope of an early wheat harvest means that considerable acreage could be double cropped this year. A number of hay fields have already been seeded to soybeans. Double cropping has generally not been a widespread practiced in Ontario, for good reason. Our growing season is too short to consistantly finish the crop and there is often insufficient moisture in mid-summer to germinate the seed. But have things changed? In 2011 a few growers had yields over 35 bu/ac with double cropped soybeans. That's incredible! The main reason for that success was that it rained in August and the fall was unusually warm. Last year was the exception, not the rule. Double cropping in Ontario remains a very risky business and often fails completely. There are two main factors that will dictate success or failure. The first is sufficient moisture in July and August and the second is an open fall. Double cropping is worth trying but keep expectations realistic. In Southwestern Ontario a 20-30 bu/ac crop is achievable if planting can be completed by July 1st and everything else goes right. However, a 30 bu/acre yield potential on July 1st drops approximately 1 bu/ac/day, so every day is crucial. Attempting to double crop after July 15th has little chance of success unless the weather is exceptional. If double cropping is attempted consider the following points:

- Harvest wheat as early as possible. Every day counts. It may be worth harvesting at a higher moisture (18-20%) just to gain a few days. Spread straw evenly. Aim for an 8- 12" stubble height - this helps to ensure stem elongation for higher bottom pod height without impeding early growth. See picture.

- If there is no moisture to a depth of 2.5 - 3.0 inches, plant at 1.5 inches and wait for rain. Success will be rain dependent. If conditions are extremely dry, do not attempt to double crop. Most double crop failures can be attributed to planting into dry conditions.

- Weed control can be an issue with conventional programs so glyphosate tolerant varieties are recommended.

- Choose tall, small seeded varieties;
  1) In greater than 2800 CHU areas choose a variety close to full maturity
  2) In areas with less than 2800 CHU's choose a variety with slightly lower CHU's than full season. Choosing very short day maturities (<2500) is not a good option. Short season soybeans planted very late will not yield well because the plants will not grow tall enough. Full season beans will provide greater height and better pod set. Due to the photo period affect a full season bean will not mature as late as might be expected compared to a short day bean.

- Plant in narrow rows with high seeding rates. Aim for 250,000 seeds/acre in 7.5 inch rows. The quicker a full canopy is achieved the better. Most companies offer reduced seed costs for double crop beans.

- Planting into a standing wheat crop has been attempted in Ontario a number of times with limited success, as has aerial seeding. The best chance to establish a crop is to seed into moisture after the wheat has been harvested.

- If the soybeans cannot be harvested in the fall they do provide some value as a cover crop. However, the fertilizer replacement nitrogen credit for the following corn crop of unharvested soybeans is not as high as might be expected. There is limited field trial research available on this subject but its estimated that only about 20 lbs/acre of N can be credited to the following corn crop. This is compared to leaving the wheat stubble with the straw removed. A good red clover stand will provide a credit of about 60 lbs/acre. That's why leaving a good stand of red clover is often preferable than double cropping soybeans. Using soybeans as a cover crop will aid in the decomposition of wheat stubble and make the seedbed more favourable for the following corn crop.

- In fields where soybean diseases are a major problem, double-cropping will make those problems worse. Consider the rotational implications.

- A 25 bu/ac crop will remove about 20 lbs/acre of P and 35 lbs/acre of K so these nutrients will need to be replaced sometime in the rotation.

Figure 1. Double Cropping Soybeans

- There is no crop insurance for double cropped soybeans.

Southwest Crop
Diagnostic Days
2012

Visit the website for Topics
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13 days away!

www.diagnosticdays.ca

Wednesday, July 4th
Thursday, July 5th

You Suspect Herbicide Drift—Now What?

Kristen Callow, Weed Management Specialist, OMAFRA, Ridgetown

Leslie Huffman, Apple Specialist, OMAFRA, Harrow

Crop injury caused by herbicide drift is guaranteed to cause misery and confrontation, not to mention insurance claims and legal charges. ***No one wins when herbicides drift*** – the applicator loses two ways: his herbicide misses the target, giving poor weed control, **plus** he is liable for damage; the "receiving" grower loses yield, crop health, perhaps timely markets **plus** his time. Sometimes our environment loses, and in general, agriculture loses in the public eye.

There Are a Number of Steps to Follow When you Suspect Herbicide Drift:

Diagnose the problem:

- Is it really drift? Eliminate other possible causes, such as: disease, insect, nutrient deficiency, herbicide carryover, environmental stress - may be similar to herbicide drift, etcetera.
- Are there patterns in the field? Is the damage worse next to the spray source, with less damage occurring across the field? Is the damage patchy? If it is, you need to check your soil pH. If your pH is considered high or low, test for herbicide carryover
- Is there evidence of a spray application? Look for wheel tracks, weed symptoms, boom patterns and overlap on the headlands. Look for spray evidence in neighbouring fields, lawns, ditches, etcetera.

2. **Contact the appropriate people:**

- Talk to your neighbour or sprayer operator. As what was sprayed, when it was applied and who did the application.
- Contact your regional Ministry of the Environment office (1-800-265-7672 Southwestern Region) – MOE officers can do a site visit, take samples of tissue and soil, and have them analyzed for the suspect herbicides. Where appropriate, the offending applicator may face charges under the Pesticide Act.
- Contact your insurance adjustor, and advise the applicator to contact theirs.

3. **Document all details of the problem:**

- Collect spray records (yours - to prove it wasn't your sprays) and the offending applicators'.
- Collect weather records (temperatures, wind speed, wind direction, rainfall - for the date of application).
- Take photos (many). Record date and location on each photo. Repeat photos several times through the season.
- Document yield loss from the damaged area and an undamaged area. Choose a similar planting (same age, cultivar, rootstock, etcetera). For perennial crops (e.g. vineyards, orchards, asparagus, berries) document the effects **for several years** after the damage occurred.

Every herbicide applicator needs to take all possible steps to avoid herbicide drift. So what should an applicator do?

1. **Work with the weather.** Avoid spraying when the weather is against you, e.g. when winds are above 11 km/hr or dead calm, when temperatures are above 30°C, and/or when relative humidity (RH) is above 80%.
2. **Identify vulnerable crops near your fields.** Choose a spray day when winds are blowing away from these sites.
3. **Make your spray less prone to drift.** Choose herbicides with a low risk of volatility. Avoid products like 2,4-D or dicamba near susceptible crops or greenhouses. Choose higher water volumes and lower pressures for larger droplets. Use the newest anti-drift nozzles. There are many air-injection (AI) nozzles that will greatly reduce risk.
4. **Work with your neighbours.** Let them know your intentions. Maybe you can both make some buffer areas between vulnerable crops. Greenhouse growers need to be notified to close vents during early morning spray times to avoid any possibility of drift.

Visit: www.ontario.ca/spraydrift for more information

Figure 1. Round-up injury on tomato